GROUND WATER PROTECTION IN VIRGINIA

2006 ANNUAL REPORT OF THE GROUND WATER PROTECTION STEERING COMMITTEE

Wellhead Protection in the Commonwealth

The Virginia Department of Environmental Quality (DEQ) submitted a State Wellhead Protection Plan (WHPP) to the US Environmental Protection Agency (EPA) in the fall of 2004. EPA provided comments on the plan; the plan was revised to address EPA comments and received approval in late May 2005. The approved plan embraces a voluntary approach by local governments with primary responsibility for protection program implementation. The following paragraphs are taken from the approved plan which can be found in its entirety at http://www.deq.virginia.gov/gwpsc/whp.html

The 1986 Amendments to the Safe Drinking Water Act (SDWA) established a federal Wellhead Protection Program to protect ground waters that supply wells and wellfields contributing to public water supply systems. The federal legislation called on States to develop protection programs for EPA approval that would protect ground water based public water supplies from contaminants that may adversely affect human health. Funding was not allocated in the SDWA to establish State programs. At that time, the Commonwealth of Virginia did not pursue an EPA approved State program due to lack of funding and concern that prescriptive language in Federal regulation would dictate implementation of protection measures for which State government has no authority.

In 1990 the Virginia Ground Water Protection Steering Committee created an ad hoc committee to investigate local government's perspective on wellhead protection. Since that time the Steering Committee has focused much of their energy and resources on promoting wellhead protection to local governments.

The 1996 Amendments to the SDWA required states to develop a source water assessment program (SWAP) and submit the plan to EPA for approval. One-time funding was set-aside in 1996 to complete the required assessments and encourage protection programs. The Virginia Department of Health (VDH) received EPA approval for their plan and completed assessments and susceptibility evaluations on all public water supply systems in the Commonwealth in 2003 (VDH continues to perform assessments as needed).

DEQ elected to move forward with the submittal of an EPA approved State wellhead protection program with the expectation of leveraging funds from Federal grants (Clean Water Act and SDWA grant funds allocated to DEQ and VDH respectively) to assist localities in implementation of local plans. This expectation was realized in October 2005 when DEQ and VDH collaborated to offer $95,000 in grant funds to local governments with ground water based public water supplies. These funds were awarded through a competitive process. In December 2005 three proposals received awards totaling $31,250. Funds not allocated in the 2005 competitive process may be carried forward to the next competitive process planned for early summer 2006.

The Safe Drinking Water Act (SDWA) requires that each State Wellhead Protection Plan (WHPP) address eight elements. These elements are addressed briefly below.

Program Summary and Purpose: The 1986 and 1996 Amendments to the SDWA require States to develop Wellhead Protection Programs and Source Water Assessment Programs. The goal for the Commonwealth's WHPP is to protect ground water resources from contaminants through ongoing regulatory and non regulatory State programs and through voluntary participation by

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Wellhead Protection Grants

A Request for Wellhead Protection Implementation Project Proposals will be issued under a new program implemented through the Virginia Department of Environmental Quality and the Virginia Department of Health. Visit http://www.deq.virginia.gov/gwpsc/whp.html for more information. Questions should be directed to Mary Ann Massie at DEQ 804-698-4042.

DEQ Virginia Department of Environmental Quality

VDH Virginia Department of Health — Protecting You and Your Environment — www.vdh.virginia.gov

Solid Waste Management Plans/ Solid Waste Management Facility Permits

http://www.deq.virginia.gov/waste/solid.html

Solid waste management plans (Plans) for all governmental entities or authorities are required to be submitted and approved by DEQ. The Plans must consider all elements of waste management during generation, collection, transportation, treatment, storage, disposal and litter control. The Plans select and denote the appropriate method of control and services for effective and efficient management of all wastes within a specific jurisdiction or solid waste authority which can span several governmental entities. The Plans must also provide for source reduction, reuse, and recycling within the jurisdiction. A Plan must be approved with specific information on landfills, such as active life, maximum daily disposal rate, and average disposal rate, before a permit for a new landfill can be issued.

The DEQ has received several applications for proposed landfills (sanitary and construction and demolition debris landfills) that have not been addressed in the Plan. If a proposed landfill is not noted in the Plan, then the Plan must go through the process of a major amendment. That process entails a public notice and public hearing.

Several landfill siting approvals (Part A applications) have had to be placed on hold until the Plan was revised. In at least one case, a major amendment for the Plan was needed. That process may take several months to complete and has slowed down the permitting process for the proposed new landfill. Also, in a case where the locality does not desire an additional landfill, the landfill could not be sited within that locality if it is included in the Plan.

Sanitary Landfill Siting Relative to a Public Water Supply Intake or Reservoir

Legislation was passed during the 2005 session that reduces the distance that a sanitary landfill can be sited from any existing public water supply intake or reservoir. The DEQ has developed guidance, with input from the Department of Health, that provides procedures and criteria for the protection of public water supplies and reservoirs in the vicinity of new sanitary landfills. The guidance provides landfill design elements, including liner requirements, additional groundwater monitoring requirements, new reporting requirements, and determination of groundwater time of travel from the landfill to the public water supply intake or reservoir if the new landfill is between 1 and 3 miles of the public water supply intake or reservoir. If a new, proposed sanitary landfill is one mile or less from the public water supply intake or reservoir, then the new landfill cannot be sited or constructed at that location. The above-noted guidance can be located on the DEQ website under waste guidance (Guidance Memo No. 04-2005).

If there are questions on solid waste issues please contact Howard R. Freeland at (804) 698-4219 or hrfreeland@deq.virginia.gov.

Office of Ground Water Characterization

During the 2005 session, the General Assembly passed legislation and provided funding to establish water supply and ground water characterization programs within DEQ in response to negative impacts experienced by many localities, businesses, and domestic well users during the drought of 2002. Two new staff positions and one existing position were reorganized within the Division of Water Resources to create the Office of Ground Water Characterization (OGWC).

The Commonwealth will be divided into three regions to include the Coastal Plain, Piedmont-Blue Ridge, and Valley-Plateau. The team will be led by Scott Bruce. Regional staff is expected to be on-board in early February 2006.

The organizational objective of the Office of Ground Water Characterization is to protect Virginia's environment and promote the health and well being of its citizens by collecting, evaluating, and interpreting technical information necessary to manage ground water resources of the Commonwealth. OGWC staff will assure that necessary information is available to support resource management decisions, water supply planning activities, ground water availability, drought monitoring, and support the expansion or creation of ground water management areas.

Initial efforts will include cooperation with other state and federal agencies involved with ground water related activities to compile historical water well construction, withdrawal data, and water quality data into a GIS

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Ground Water Festivals

http://www.deq.virginia.gov/gwpsc

Local volunteers organized ground water festivals in three different locations to teach sixth grade students and their teachers about ground water protection concepts and to improve environmental stewardship across the Commonwealth.

In mid May 2005 three hundred eighteen sixth graders from Russell County public schools attended festivals held at the Russell County fairgrounds. The fairgrounds donated the use of the facility! Ms. Angela White with the Clinch Valley Soil and Water Conservation District organized the festival.

Two festivals held for the Lancaster County and Northumberland County sixth graders were organized by Mrs. Audrey Brainard and Mrs. Kathy Moeller, Northumberland Association for Progressive Stewardship. Two hundred students attended the festivals which were held at Camp Kittamaqund.

In early October 2005 four hundred sixty Dickenson and Buchanan County sixth graders attended three festivals held at Breaks Interstate Park. The park system donated the use of their outdoor shelters! Mr. Toby Edwards with the Cumberland Plateau Regional Waste Management Authority organized the festivals with assistance from Mrs. Marie Sexton and Mr. Eugene Mullins. Mrs. Sexton is with "Keep Buchanan County Beautiful"; Mr. Mullins is with the Dickenson County Litter Control Office.

Students attending the festivals received t-shirts with the festival logo.

For more information on the festivals contact Mary Ann Massie at the Virginia Department of Environmental Quality mamassie@deq.virginia.gov

Office of Ground Water Characterization

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database as well as develop procedures to automate the acquisition of new data. Long range goals include expansion of the State Observation Network west of the fall line and publication of regional ground water resources reports.

For more information on this exciting new office contact Scott Bruce at tsbruce@deq.virginia.gov or 804-698-4041.

The Ground Water Protection Steering Committee meeting is held on the third Tuesday of the odd numbered months (January, March, May, July, September, and November)

Meetings are generally held at the Department of Environmental Quality, 629 East Main Street, Richmond from 9 a.m. to 11 a.m. Meetings are open to the public.

For more information contact Mary Ann Massie at DEQ 8040-698-4042 or email mamassie@deq.virginia.gov or visit www.deq.virginia.gov/gwpsc

Meeting summaries and announcements are posted on the Regulatory Townhall at www.townhall.virginia.gov

Virginia's Central Business Web Portal serving business and entrepreneurs. Featuring "Business Live" live chat assistance with representatives from the Virginia Business Information Center. Visit www.business.virginia.gov

Get your business ready for emergencies now. Check out the "Virginia Business Emergency Survival Toolkit" www.vaemergency.com

Wellhead Protection in the Commonwealth

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local governments with land use management authorities. Information on the Commonwealth's Source Water Assessment Program, under the purview of VDH, can be found at http://www.vdh.virginia.gov/dw/swap.asp Information gained through the assessments may be used to build voluntary, community based programs that prevent contamination of ground water bases water supplies.

Duties of State agencies, local governments and public water supply systems (Roles and Responsibilities): DEQ will serve as the lead agency for coordination of this voluntary protection program. VDH will continue as the Commonwealth's regulatory authority for public water supplies, including ongoing oversight of the Drinking Water State Revolving Fund Program. DEQ and VDH will continue to coordinate protection activities to increase funding opportunities for local program implementation and to evaluate progress in the submittal of the EPA Annual Source Water Protection Measures Tables.

Local governments will have the primary responsibility for protection program implementation. The land use authority needed for wellhead protection is part of the Code of Virginia, Title 15.2 Chapter 22.

Delineation (Define Protection Areas): Zone 1 Ground Water Source Assessment Areas, defined in the Virginia Source Water Assessment Program and approved by EPA as 1000 foot fixed radius, will be accepted as an initial delineation. The Commonwealth does not intend to revisit or revise the method established in the SWAP nor does the Commonwealth intend to approve more technical delineations as being more protective of the resource. The Commonwealth will encourage localities to explore tools for managing contaminants within protection areas that are best suited to local hydrogeologic and political conditions.

Source Identification: The VDH completed contaminant source inventories for all public water supplies wells as outlined in the Virginia Source Water Assessment Program. The VDH will continue to meet their regulatory commitment by completing contaminant source inventories for all new public water supply systems. Information obtained through the inventories is provided to the owner of the public water supply system; information on susceptibility rankings is provided to the public served by each system. VDH staff may update inventories as part of their scheduled sanitary surveys.

Management Approaches: §15.2-2223 and §15.2-2283 of the Code of Virginia include ground water protection provisions for local governments to consider when developing Comprehensive Plans and/or zoning ordinances. Because local governments have the authority for land use decisions, selection of management methods to protect ground water will be determined at the local level. The Commonwealth will encourage local governments to select a management method that will be supported by their constituents and protective of the resource.

Contingency Plan (Contingency Planning): Regulations promulgated by VDH, 12VAC5-590-690, establish criteria for minimum capacity for waterworks. § 44-146.19, § 44-146.20, and § 44-146.24 of the Code of Virginia establishes the legal basis for emergency planning and response in the Commonwealth. The provisions from the Superfund Amendments and Reauthorization Act (SARA) of 1986, Title III statute are also known as the Emergency Planning and Community Right-to-Know Act (EPCRA). The purpose behind SARA Title III/EPCRA has been to create a cooperative relationship among government, business, and the public involving all of them in the effort to prevent, to plan, to prepare for, and to manage chemical emergencies. The law sets the requirements for facilities that manufactured, processed, or stored certain hazardous or toxic chemicals, of certain threshold level, on-site to report annually to the state and local governments and to report any accidental releases on a timely basis. The information submitted by facilities provides the basis for community right-to-know and local emergency planning and preparedness.

New Wells: VDH and DEQ will continue to cooperate in permit issuance. VDH will maintain regulatory authority in the development, contaminant source inventory/assessment, and permitting of new public water supplies. VDH ensures new wells meet the quantity demands placed on the system by the consumer. VDH copies DEQ on well site authorization letters when the well is within a Ground Water Management Area. DEQ issues ground water withdrawal permits in Ground Water Management areas to minimize adverse impacts to the ground water resource. DEQ ground water withdrawal permits are not restricted to public water supplies. DEQ requires water supply applicants to provide their waterworks permit number, issued by the VDH, as part of their ground water withdrawal application.

Conduct Ongoing Public Education and Outreach (Public Participation): Citizen input will be an integral part of

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implementing protection measures at the local level. Localities are encouraged to establish local committees for outreach and education activities as well as to provide input on management options for implementation.

The plan established by the Commonwealth encourages local protection plans to address the following six elements:

1. Establish a local advisory committee, designate a primary contact or lead person, and allow for appropriate public participation. Representation from the local administrator's office, the locality's attorney, the local planning office and planning board, the appropriate VDH field office, the waterworks operator, and the Board of Supervisors are strongly encouraged. Local advisory committees should consider developing wellhead protection areas for water systems not owned/operated by the locality as well. Local advisory committees should encourage development of countywide protection programs. This local team serves several important functions: (1) ensuring that the concerns of different segments of the community are addressed on an ongoing basis during the planning process; (2) serving as a focal point for public input during the process of evaluating alternative management options for wellhead protection; and (3) providing a core of leadership for educating the wider public and implementing the wellhead protection program. (US EPA Handbook Ground Water and Wellhead Protection, 1994)

2. Include ground water and wellhead protection interests in the Comprehensive Plan. The Comprehensive Plan should include a list of all ground water based public water supply systems. A map noting the system locations and designated protection areas when applicable should be included.

3. Define protection areas and manage land use activities within these areas. Local officials with land use authorities will select and implement the necessary steps to protect the water supply or supplies. This may be accomplished through strong educational programs, non-regulatory initiatives, and/or regulatory initiatives.

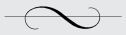
4. Establish a schedule to update potential sources of contamination within Zone 1 and 2 (as defined by VDH Source Water Assessment Program 1,000 ft. fixed radius and 1 mile fixed radius respectively). At a minimum waterworks should submit contaminant source inventory updates for Zone 1 with their sanitary survey.

5. Identify alternate water supply sources in the event of a contamination incident or other service disruptions. Emergency response plans should be filed with local emergency responders, include important contact information, and be reviewed semi annually.

6. Plan for the future. Discussions should be included for site selection of new sources and management tools for resource protection.

For more information on wellhead protection visit http://www.deq.virginia.gov/gwpsc/whp.html or call Mary Ann Massie at 804-698-4042.

Funding for the Virginia Ground Water Protection Steering Committee activities, including development of this Report, is provided through a grant to the Department of Environmental Quality by the U.S. Environmental Protection Agency.



The following agencies have representation on the Ground Water Protection Steering Committee:

Virginia Department of Environmental Quality (chair)

Virginia Department of Health

Virginia Cooperative Extension

Virginia Department of Business Assistance

Virginia Department of Conservation and Recreation

Virginia Department of Mines, Minerals, and Energy

Virginia Department of Agriculture and Consumer Services

Virginia Department of Housing and Community Development

Virginia Department of General Services/Division of Consolidated Laboratory Services

US Geologic Survey

Visit www.deq.virginia.gov/gwpsc for member links.

The U.S. Geological Survey

http://va.water.usgs.gov

The United States Geological Survey (USGS) continued the cooperatively funded assessments on the availability of ground water in the northern Shenandoah Valley carbonate and siliciclastic aquifer systems with Frederick, Warren, and Clarke counties, and began the South Fork Shenandoah River Minimum Instream Flow (MIF) investigation with the Northern Shenandoah Valley Regional Commission. The first report from the Frederick County carbonate aquifer investigation was provided to Frederick County (available on-line at http://pubs.usgs.gov/sir/2005/5161/) and the final report of the North Fork Shenandoah MIF investigation will be provided to the Northern Shenandoah Valley Regional Commission and local stake holders in 2006. The Frederick County investigation is on-going and data collected during the study thus far can be accessed at http://va.water.usgs.gov/va134/index.htm. Results of the MIF study, conducted by the USGS and Virginia Tech, will serve as the technical foundation for consensus decision making by local communities to manage water withdrawals from the North Fork during critical low flow periods.

In 2005, the USGS continued constructing ground-water-flow models, in the Shenandoah Valley, at both local and regional scales to better define the availability of ground water and its response to current and future development. Two large-scale models of the Shenandoah Valley (2,900 mi2) have been developed to estimate the depth of active recharge through steady-state simulations of the flow system. In the first model, the principal directions of transmissivity are horizontal and vertical; in the second, the principal directions are parallel and orthogonal to bedding. A comparison of model results will indicate the degree to which the bedding controls the distribution of recharge in the aquifer system. An additional comparison will be conducted to quantify differences in using MODFLOW and SUTRA to represent the effect of bedding on ground-water flow. These models of the Valley will be modified to represent discharge to springs, streams and production wells. An additional layer will be added to represent the overburden and, in particular, the alluvial deposits that flank the western slope of the Blue Ridge.

A groundwater simulation model is also being developed for the Opequon Creek watershed, which runs from Winchester, Virginia, north to the Potomac River and covers 340 square miles. The model will simulate ground-water flow in the complex karst aquifers of the watershed. New methods will be developed for representing layered karst ground-water systems, which will be useful for future modeling of similar systems. The Opequon model will also be helpful to local

Dawn rises over the Virginia Eastern Shore as floodlights illuminate around-the-clock research-drilling operations at Eyreville, centered within the Chesapeake Bay impact crater. Members of the Ground Water Protection Steering Committee visited the site on November 1, 2005.

and regional water resource managers, who are grappling with growing demands for drinking water and declining ground-water quality. Seed funding for this project has been obtained and work on the project has begun. In July 2005, a synoptic survey of base flow and spring discharge was completed at 177 sites across the watershed.

Several avenues of other research investigation in the Valley continued in 2005. A total of 87 karst springs have been located and sampled for environmental tracers to develop methods to determine fractions of young and old water in spring discharge, estimate the age of young fractions, identify cases of more complex subsurface mixing and estimate mean residence time of the ground-water reservoir. The digital geologic map of the Stephens City 1:24,000-scale quadrangle is complete and will go into technical review in January, 2006, and will be published on the internet in 2006. Geologic mapping is about 70% completed in the Stephenson and Inwood 1:24,000-scale quadrangles of Frederick and Clarke counties. Both land- and marine-based 2-D electrical resistivity imaging surveys were conducted in Clarke County and on the South Fork and Mainstem of the Shenandoah River in 2005 to delineate bedrock topography and karst features.

In 2006, field mapping will begin in the White Hall, Hayfield, and possibly Boyce quadrangles. The methods development and testing phase of the Karst Seismic Imaging Initiative will continue. Some combination of high-resolution surface-wave seismic, high-frequency seismic reflection and 2-D electrical resistivity imaging surveys will be

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conducted over a grid such that the data can be examined in 3-D to delineate bedrock topography and karst features. A new SF5CF3 ground-water-dating technique will be applied to the karst spring sampling research. USGS technical staff also will continue to meet semi-annually with state and local decision makers through the Great Valley Water-Resources Science Forum to share new information resulting from the study (http://va.water.usgs.gov/GreatValley/Index.htm).

Revision of a computer model of ground-water flow on the Virginia Eastern Shore continued during 2005, in cooperation with the Accomack-Northampton PDC, and the Virginia Department of Environmental Quality (DEQ). The Eastern Shore of Virginia is a sole source aquifer that has been designated by the Commonwealth of Virginia as a ground-water management area. Calibration of the model proceeded by linking completed input files for pumping histories to a preliminary coarse-grid version of the model using the SEAWAT model code. Results were then used to start calibration of a fine-grid version of the model. In addition, observation well locations for ground-water carbon-14 samples were set up as input files for the particle-tracking code MODPATH, which is being run simultaneously with SEAWAT during the calibration procedure to obtain simulated ground-water ages at the wells. A multi-node well package was also invoked for the fine-grid model in order to account for wells with multiple screens pumping from multiple aquifers. A hybrid interpolation scheme was developed based on kriging and the inverse-squared methods to develop continuous maps of the model parameter values. The final version of the Eastern Shore model will be documented in a report planned for publication during 2006, and will be used by local communities for long-term water supply planning and by DEQ to support ground-water permitting decisions.

A large scale effort for region-wide characterization of ground water throughout the Virginia Coastal Plain also continued during 2005 in cooperation with DEQ and the Hampton Roads Planning District Commission (HRPDC) (see 2000-05 Annual Reports). Southeastern Virginia and the York-James Peninsula have been designated by the Commonwealth of Virginia as a groundwater management area, and ground-water withdrawals on the Middle Peninsula and Northern Neck also are increasing. During 2005, ground water was sampled from two deep observation wells near the center of the Chesapeake Bay impact crater at Cape Charles, and is being analyzed to investigate hydrothermal activity from the impact. In addition, core of exotic impact-generated sediment and rock was drilled from more than a mile deep at nearby Eyreville (see photo) in cooperation with the International Continental Scientific Drilling Program (ICDP), a multinational earth-science consortium. Analyses of this core during 2006 and beyond will reveal many aspects of the immediate and long-term effects of the impact. The crater and other recent findings have been incorporated into a refined hydrogeologic framework that represents the configuration of aquifers and confining units across the entire Virginia Coastal Plain, and which is documented in a report drafted during 2005 and planned for publication in 2006. Based on the new framework, a study to characterize the chemical quality of ground water is now being planned, with the initial effort to begin during 2006.

Also during 2005, the refined framework, reported ground-water withdrawals, and estimates of unreported domestic withdrawals were incorporated into a beta version of a new computer model of ground-water flow in the Virginia Coastal Plain. Rates of unreported domestic withdrawals were estimated and spatially allocated to individual Coastal Plain aquifers based on statistical sampling and GIS analysis of health department well-completion reports from 30 county offices. Well characteristics and aquifers used are being summarized by county in a report planned for publication in 2006. The beta version of the ground-water model is based on an initial calibration of simulated and observed ground-water levels, and is undergoing preliminary evaluation by DEQ and HRPDC as a means to support ground-water withdrawal permitting decisions and water-supply planning. Further refinements including an improved calibration are being directed toward finalizing the model during 2006, which will be documented and released publicly in a report planned for publication in 2007.

Lastly, ground-water levels in the Virginia Beach shallow aquifer system were measured during 2005 from a network of continuously monitored wells, which was expanded to include several "real-time" sites. A computer model of ground-water flow in Virginia Beach also was refined across the central transition zone separating urban land use in the north from the rural area to the south. Hypothetical effects from activities such as golf-course irrigation, open-pit mining, and residential development were simulated and published in USGS Scientific Investigations Report 2005-5067, "Simulated Changes in Water Levels Caused by Potential Changes in Pumping from Shallow Aquifers of Virginia Beach, Virginia" by Barry S. Smith (http://pubs.usgs.gov/sir/2005/5067/). During 2006, ground-water data will be analyzed to distinguish areas where the Columbia and Yorktown-Eastover aquifers are well connected from those that are not. The observation-well network, data bases, and the public web page (http://va.water.usgs.gov/projects/va113.html) will also be maintained.

2005 Source Water Protection Activities (SWAP)

http://www.vdh.virginia.gov/dw/swap.asp

1) Hosted EPA Region III Source Water Meeting in Richmond in May 2005.

   a. Representatives from EPA, VA, MD, WV, DE, & PA attended

   b. Talk about Status of SWAP

   c. Source Water Measures

   d. Implementation of source protection

   e. Funding Sources

2) Worked with DEQ to develop and submit a Virginia Wellhead Protection Plan.

3) Renewed source water contract with Olver Inc. for an additional year (Third Year) to continue working with small waterworks in developing protection plans. Over 50 waterworks have been contacted to participate in the program over the last year. Nearly 20 waterworks expressed an interest in pursuing a plan. 10 new plans were developed in 2005.

4) Updated several databases in SWAP GIS. Working with other state agencies (VDOT, DCR, DEQ, VDOF) to obtain latest data and explore new ideas on obtaining real-time data.

5) Continued work with VRWA protection specialists. Provided numerous copies of completed source water assessment reports and entered new land use activities into SWAP GIS.

6) Nominated Town of Luray for EPA Region III Source Water Protection Award. Attended presentation in August 2005.

For more information on VDH's Source Water Protection program contact Chris Adkins at 804-864-7495 or visit http://www.vdh.virginia.gov/dw/swap.asp

Virginia Department of Health and Olver Inc. Team Up for Protection Plan Implementation

VDH and Olver Inc. followed their second successful contractual relationship by extending the contract for another year. This team effort has successfully developed effective working relationships with current program and past program participants to assist with protection program implementation. Olver Inc. has gathered a talented and experienced pool of technical resources and staff to support the efforts of VDH and the individual waterworks in designing and implementing source water protection.

Resources available through Olver's work with VDH include:

- Wellhead Protection Program informational letter and brochure for communities interested in learning more about the program; http://www.vdh.virginia.gov/dw/files/swapProgramBrochure.pdf
- Wellhead Protection Program presentation and supporting information to present to waterworks interested in program participation;
- An extensive reference library containing information from the EPA and other Regulatory Agencies about wellhead protection; http://www.vdh.virginia.gov/dw/swapResources.asp
- Several standard program forms and letters including site-specific data request forms;
- A project specific Electronic Data Management System to organize information about each locality;
- Technology and Visual tools for presentations to communities participating in the program as well as to local advisory committees;
- A website to provide information about the wellhead protection program to interested waterworks, to provide information about wellhead protection, and to promote the successes of the public water systems that have already implemented their wellhead protection plans. www.vdh.virginia.gov/dw/swapinfo.asp

For more information on this successful team or to inquire about assistance through VDH and Olver Inc. contact Chris Adkins at 804-864-7495 or chris.adkins@vdh.virginia.gov

2005 Pesticide Disposal Program

http://www.vdacs.virginia.gov/pesticides/index.html

The Virginia Department of Agriculture and Consumer Services (VDACS), in cooperation with the Virginia Pesticide Control Board (PCB) and Virginia Cooperative Extension (VCE) completed the 2005 Pesticide Disposal Program in late August. The program assists agricultural producers, pesticide dealers and pest control firms with the proper disposal of unwanted agricultural and commercial pesticide and is available at no cost to participants. A total of 87,526 pounds of canceled, banned or unwanted agricultural and commercial pesticides were collected and subsequently destroyed. Since its inception, Virginia's Pesticide Disposal Program has collected and destroyed a total of 1,245,851 pounds of pesticides.

The program, which is free for participants, is funded through pesticide fees collected by VDACS' Office of Pesticide Services.

The 2006 Pesticide Disposal Program will be conducted in Northwest Virginia.

For more information, contact Liza Fleeson, Environmental Program Planner, Office of Pesticide Services, at 804-371-6561.

2005 Plastic Pesticide Container Recycling Program

http://www.vdacs.virginia.gov/pesticides/index.html

The Virginia Department of Agriculture and Consumer Services (VDACS), in cooperation with the Virginia Pesticide Control Board (PCB) and Virginia Cooperative Extension (VCE) and local governments recycled a total of 57,008 pesticide containers from 16 localities and 12 pesticide dealer locations in 2005.

The Plastic Pesticide Container Recycling Program is an environmentally responsible alternative for the disposal of properly rinsed plastic pesticide containers. Granulated chips are transported to recycling facilities and fabricated into items such as pallets, fence posts, field drain tiles and parking stops thus keeping them out of landfills.

To participate in the Program, a locality must make application to VDACS and agree to collect, inspect and store the properly rinsed containers until granulation. VDACS provides $1,875 in reimbursement costs to participating localities to offset the cost of the program.

For more information, contact Liza Fleeson, Environmental Program Planner, Office of Pesticide Services, at 804-371-6561.

December 2005

The Virginia Department of Health welcomed J. Wesley Kleene, Ph.D., P.E., as the new director of the Office of Drinking Water. Wes has almost 20 years experience in a variety of engineering roles including work as an environmental engineer modeling point source pollution, as an engineer working with water and sewage systems, as a GIS manager, as information technologist supporting various water projects, and as a consultant on the vulnerability of water systems. Prior to his promotion within VDH Wes worked in the Office of Drinking Water as the security director and, most recently, as the technical services engineer. His education includes a masters specializing in water and wastewater engineering and a Ph.D. in biological systems engineering.

Wes replaces Jerry Peaks who retired in early December. Congratulations to both Wes and Jerry and best wishes in their future endeavors.

Wes can be reached at wes.kleene@vdh virginia.gov or 804-864-7522.

http://www.dhcd.virginia.gov

The Virginia Department of Housing and Community Development (DHCD) provide significant financial assistance to water and sewer-related projects across the Commonwealth. A description of the major programs for water and sewer related projects and their funding sources follows:

Virginia Community Development Block Grant

DHCD has administered the Virginia Community Development Block Grant (CDBG) Program since 1982. DHCD uses federal funds available from the U.S. Department of Housing and Urban Development (HUD). DHCD funds projects in eligible non-entitlement localities. These local governments do not receive CDBG funding directly from HUD. Each CDBG-funded project must meet one of the following three national objectives:

- Activities benefiting low- and moderate-income persons;
- Activities preventing or eliminating slums or blight; and
- Activities designed to meet community needs having a particular urgency.

Projects may contain activities meeting multiple national objectives. CDBG includes several funding categories under the broad heading of Community Improvement Grants (CIG). According to the 2006 VCDBG Program Design, which outlines the projected use of funds as well as its method of fund distribution to local governments, the agency has reserved $1 million for construction-ready water and sewer projects. This funding is available only in areas where at least 65 percent of the households have low- or moderate- incomes.

In 2006, the Department has reserved approximately $2.5 million in CIG funds for Community Economic Development projects. Eligible projects include off-site water, sewer, roads and drainage. DHCD also designated approximately $8.6 million for the Competitive Grants category for 2006. Eligible activities include Community Facility funding for water, wastewater and drainage improvements and Comprehensive Community Development projects that target multiple activities including water and sewer rehabilitation.

Self-Help

Self-Help Virginia helps small communities create viable and affordable water and wastewater systems. This program operates under the CIG Community Development Innovation funding heading. It uses an outcome-oriented approach that emphasizes problem-solving and dollar-savings. Self-Help projects tap neighborhood talents, manpower and creativity to provide water and sewer services in areas where conventional approaches may be impractical or unaffordable. The program stretches limited financial resources to assist more communities than would be otherwise possible. Examples of Self-Help Virginia activities include neighborhood residents acting as their own project managers, laying water and sewer lines, and operating leased or donated excavation equipment. Qualifying projects must:

- Be limited to no more than $350,000 in CDBG assistance;
- Be limited to water and sewer projects with no more than $10,000 in CDBG assistance per household served;
- Use more volunteers from the community than paid workers;
- Be supported by cost estimates demonstrating a minimum of 40% savings over conventionally-contracted projects;
- Conduct, early in the process, at least one well-attended community meeting must occur supporting the project; and
- Verify that at least 51% of the proposed beneficiaries are low-or moderate-income, and signed user agreements will need to be produced.

Most Self-Help funds are used for materials; however, necessary labor, engineering, and administrative costs are also eligible. (Administrative costs are limited to 10% of the grant). Approximately $1,000,000 in funding for the Self-Help Program has been reserved for 2006.

Appalachian Regional Commission

DHCD also provides water-related funding through its administration of the Virginia Appalachian Regional Commission (ARC) program. ARC was designed to foster economic development and to improve the quality of life for Appalachian citizens. The Program provides assistance in the longer-term development of a chronically depressed region encompassing 23 counties and seven independent cities. Special efforts assist designated distressed counties (Dickenson). ARC undertakes projects that address four goals identified by ARC in its strategic plan:

- Increase job opportunities and per capita income;

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- Strengthen the capacity of the people of Appalachia to compete in the global economy ;
- Strengthen the physical infrastructure; and
- Build the Appalachian Development Highway System.

Virginia's ARC program provides up to $500,000 for construction projects and up to $100,000 for non-construction projects. Applicants provide a dollar-for-dollar match except in ARC-designated Distressed Counties. Distressed Counties only require a 20% match of the total ARC grant. In the past year, ARC provided approximately $3.5 million in funding for community and economic development projects through three programs: the Area Development Program, the Asset-Based Development Program, and the Appalachian Telecommunications Program. The Area Development Program funded projects that include water service to communities and industries. Grassroots participation is encouraged. Applicants include localities, PDCs, educational institutions, health organizations, non-profit organizations and others.

Indoor Plumbing Rehabilitation

DHCD also addresses water needs through the Indoor Plumbing Rehabilitation (IPR) Program. This program provides zero- interest, forgivable loans in eligible localities for the installation of indoor plumbing to owners of substandard housing where indoor plumbing does not exist, or where the existing water delivery or waste disposal systems have failed. The homeowner's ability to pay determines loan repayment provisions. The program also provides for the general rehabilitation of these units and for accessibility improvements in units occupied by persons with disabilities or where overcrowded conditions exist. DHCD contracts with locally appointed subrecipients (typically local governments, non-profit housing providers, and housing authorities) to administer the program. Subrecipients are responsible for most program operations including outreach, application intake, beneficiary and property eligibility determination, and construction management. The IPR program received approximately $5.7 million in federal program and state general funds for the 2004-2006 biennium.

Southeast Rural Community Assistance Project

DHCD also provides water-related funding through the Southeast Rural Community Assistance Project (Southeast RCAP). Virginia is a member of this project along with the states of Delaware, Maryland, North Carolina, South Carolina, Georgia and Florida.

Southeast RCAP helps small rural towns and communities upgrade their water and wastewater systems. Low-income individuals and communities are eligible for grants and loans that assist the rehabilitation of housing, the construction of water and wastewater infrastructure, in small business development, and the financing of development projects for small rural governments. Various Southeast RCAP programs use volunteers to conduct projects, train community leaders, and train and recruit additional local volunteers. For the 2004-2006 biennium, Virginia contributed just over $2.9 million to Southeast RCAP.

2004-2006 Biennial Budget

The 2005 General Assembly added $5 million in the amended budget for clean water projects in Southwest Virginia. The money is intended to pay the capital costs for safe drinking water and wastewater treatment in the Lenowisco, Cumberland Plateau, or Mount Rogers planning districts. DHCD must leverage the appropriation with other state moneys, federal grants or loans, local contributions, and private or nonprofit resources.

The Ground Water Protection Steering Committee is an inter-agency advisory committee formed to stimulate, strengthen and coordinate ground water protection activities in the Commonwealth. The Annual Reports allow us to highlight our progress; to educate Virginia citizens, businesses, and officials about the importance of ground water; and to publicize state programs that can assist those relying on ground water to ensure its continued quality and availability.

Particular emphasis is made at the meetings on education and information exchange. Meetings are open to the public. In 2005 our members and guests heard presentations on the 2005 Ground Water Festivals, DEQ's Award Winning Hazardous Waste Program, USGS work on Shenandoah Valley Regional Assessment activities, and stormwater management and low impact development options as shown on the recently released DVD ''Reining in the Storm''. Steering Committee members also enjoyed a field trip to the International Continental Scientific Drilling Program's drill site associated with the Chesapeake Bay Impact Crater.

For more information on the Steering Committee visit www.deq.virginia.gov/gwpsc or call Mary Ann Massie at 804-698-4042.

Karst Program

http://www.dcr.virginia.gov/dnh

The project is implemented by the Natural Areas Management Program in order to document, conserve, and restore karst waters that serve both as water supplies for human use and as ground water habitats of rare, sensitive species. Project implementation is shared with the Nonpoint Source Management program, an arrangement that highlights the integral connection between the preservation of natural heritage resources and the quality of State Waters and drinking water supplies. Staff focuses on threats to water quality in a 26-county region underlain by cavernous bedrock in western Virginia, and works in close cooperation with the Virginia Cave Board, the Virginia Resource Use Education Council, the US Fish and Wildlife Service, the Department of Game and Inland Fisheries, the Department of Transportation, Soil and Water Conservation Districts, the US Geological Survey, and the Natural Area Preserve System. The three components of karst groundwater protection are education and outreach, data development, and technical assistance. Education and outreach efforts focus on stakeholder workshops, teacher education (Project Underground), and other professional development. Data development activities include basin delineation and characterization through tracer dye studies, mapping of karst features, water quality monitoring, and biological inventory. Technical assistance efforts include environmental project review and assistance to agencies and localities on development of best management practices, ordinances, and regulations. Karst Program staff serves as on call karst experts to localities and state and federal agencies.

Current projects of interest include the development of conservation site boundaries for Virginias approximately 400 significant caves. This project will dramatically increase the number of karst basins defined by tracer dye studies. An outgrowth of this project is the Virginia Karst Hydrology Atlas, a GIS database of tracer dye studies showing subsurface water connections in Virginia's karst regions. The atlas will soon be available in limited form online. Full access will require coordination with Karst Program staff. Staff is also working with the Department of Game and Inland Fisheries to perform detailed inventory of the Shenandoah Valley to determine the distribution of the Madison Cave Isopod (Antrolana lira), listed as threatened over its entire range by the US Fish and Wildlife Service. Results of such a study would likely point to revisions of the species' recovery plan to require a higher base level of water quality protection measures over the entire species range rather than just at specific localities as is now the case. The karst program is assisting Virginia Tech and VA-DEQ on hydrological studies of karst groundwater systems feeding streams on the impaired stream (303d) list. Karst education received a boost this year with the upgrade of the Karst Education Coordinator position to full-time status. Of particular importance in education and outreach were the Chesapeake Bay Headwaters Academy and the Growing Communities on Karst series of workshops. The Chesapeake Bay Headwaters Academy was sponsored by the VRUEC and organized by the Karst Education Coordinator, providing the opportunity for teachers to earn continuing education credits while learning about the protection of groundwater resources. The Growing Communities on Karst workshops will continue into future years, and focus on bringing diverse stakeholders together to learn about the expanding urban-rural interface and its relationship to karst systems.

For information on DCR's Karst program contact Wil Orndorff at Wil.Orndorff@dcr.virginia.gov or 540-831-4056.

Virginia Rural Water Association (VRWA) News:

The Source Water Specialist for VRWA is Albert Crigger. This program is funded by the Environmental Protection Agency. Albert provides technical assistance to develop and implement source water protection plans to address the needs of rural and small community water systems throughout the state. Albert gives presentations, writes reports, and develops informational literature for small systems and local government officials. He is a liaison for coordination, communication, and collaboration between rural and small community entities and local, state, and federal agencies.

For more information on VRWA's Source Water program contact Albert Crigger, Source Water Specialist, at 540-562-2320 or albertcrigger@aol.com